Pharmacokinetics of Nicotine Absorption

Part 2: A Primer

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“Your writing is both inspirational and motivating…”

Halima Sarki

Abuja Nigeria

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Introduction

In The Name of Allah, The Entirely Merciful The Especially Merciful

This is part 2 about the introduction to Pharmacokinetics of nicotine absorption- by the will of Allah

I have purposely kept it short, for brief reading.

Text(Matn)

All praises be to Allah and salutations and peace be upon the Prophet Muhammad, His Family, His Companions and all those that follow him until the day of Judgement

To proceed

[Taken from “The Pharmacokinetics and metabolism of Nicotine”, Hukkanen(2005c)]

Cigarette absorption is about 1mg per cigarette

Cigarettes contain typically 12mg to 18mg of nicotine, but only about 0.95mg is absorbed, approximately 1mg of nicotine.

50-80% nicotine in lozenges is swallowed.

For a smoker, blood/ plasma nicotine concentration is usually between 10 to 50ng/ml. In an average smoker, about 35ng/ml

About 50% of the nicotine in gum is absorbed.

The most widely used biomarker of nicotine intake is cotinine, which maybe measured in blood, urine, saliva, hair or nails. Cotinine levels for a non-smoker is 3ng/ml

Nicotine is a botanical insecticide in Tobacco leaves.

1- 1.5mg of nicotine is absorbed from a cigarette, although it contains about 10- 14mg nicotine.

S-nicotine and R-nicotine is found in potatoes, eggplants(Siegmund etal 1999)

When Tobacco smoke reaches the small airways and alveoli of the lungs, nicotine is rapidly absorbed.

Blood concentrations of nicotine rise quickly during a smoke, and peak at the completion of smoking.

After a puff, high levels of nicotine reach the brain in 10-20 seconds

NRT(Nicotine Replacement Therapy) are alkaline pH to aid absorption of Nicotine.

Slow increase in blood and brain levels of NRTs result in low abuse liability of NRTs (West etal 1999)

Nicotine gum is absorbed less because

1. it is swallowed(approximately 50%)

2. Some of the nicotine is retained in the gum

Sublingual tablets, inhalers, gum, nasal spray and lozenges; a portion of nicotine is subject to first pass metabolism. Absorption is mainly through the mucosa of the oral(and nasal for the nose inhaler)

cavity. 50-80% of nicotine is swallowed.

Nicotine is well-absorbed through the skin; for example a 21mg patch for 16 to 24 hours; all(most of) the 21mg is absorbed through the skin

After smoking, arterial blood nicotine concentration is between 20 and 60 ng/ml, reaching up to 100ng/ml.

The first puff, arterial blood nicotine concentration is approximately 7ng/ml average.

Nicotine is metabolised to different metabolites, including most importantly cotinine.

In humans, 70- 80% of nicotine is converted to cotinine.

Food eaten with nicotine being entered into the body results in a consistent decline in nicotine concentrations.

Smoker in afternoon; average 10 to 50 ng/ml blood/ plasma nicotine concentrations.

There is between 5 to 30ng/ml increment in venous blood concentrations after smoking 1 cigarette. This depends on how it is smoked(i.e. shallow short puffs or deep long puffs).

Blood levels peak at the end of smoking a cigarette, and decline

rapidly over the next 20 minutes, due to tissue distribution.

Smoking represents a multiple dosing situation, with considerable accumulation whilst smoking, and persistent levels for 24 hours of each day.

For patches; 10- 20ng/ml plasma nicotine concentrations.

For nicotine gum, inhaler, sublingual tablets and nasal spray; 5

to 15ng/ml plasma nicotine concentration.

NRTs(Nicotine Replacement Therapies) result in 1/3 to 2/3 the concentration of nicotine achieved by cigarette smoking

However, users of 4mg gum may sometimes reach, or even exceed the nicotine levels associated with smoking.

Cotinine blood concentration for users of NRT(Nicotine Replacement Therapy) is about 250 to 300ng/ml. In smokers, up to 900ng/ml

Cotinine levels for users of NRT is usually 30- 70% the levels detected while smoking

Hair: a good measure of nicotine and cotinine. Hair is a way to assess long term exposure to nicotine

Bonus Chapter

General Cycle of a Software Engineering Project

1. Requirements specification

2. Objectives of the new Project

3. Design i.e.: prototyping, wireframe diagrams, use of UML(unified modelling language) etc.

4. Software programming/ Implementation of the actual code for the Software

5. Testing the Software i.e.

a) unit testing

b) black box testing

c) White box testing etc.

6. Deployment- i.e.

Making the software live to to the end users

a. i.e. continuous Integration and Deployment(CI/ CD) as in the Agile Methodology

b. In the waterfall model, generally deployment happens only once in in the project.

7. Documentation:

This is done more in the Waterfall model for example.

8. Maintenance (of the Software System)

FINAL PRAYER

All Praises abundant and plentiful belong to Allah, and peace be upon his final Messenger Muhammad, peace and blessings be upon him, his family, his companions and all of those that follow them till the day of Judgement.

FINAL WORD

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Bonus Chapter 1

3 types of souls

1. Mutma innah- Surah Fajr Verse 27(The break of day or The Dawn)

2. Lawwaamah- Chapter 75 Surah Qiyaamah(The Resurrection) Verse 2

3.Amru bissuw-

Hisnul Muslim- Qahtani

3 types of hearts

1. Qalbun Saliim(A sound heart)

2. Qalbun Mareedh(A sick heart)

Oh Allah give us a complete cure that leaves no illness Ameen.

3. Qalbun Mayyit(A dead heart)

May Allah protect us from this

Ameen

Bonus Chapter 2

All praises be to Allah and salutations and peace be upon the Prophet Muhammad, His Family, His Companions and all those that follow him until the day of Judgement

To proceed

1. If you don’t let go to worldly love, you’ll never know which relationship is meant to be permanent, and which was meant to be temporary; for the good of yourself.

Take the example of Prophet Ibrahim(upon him be peace and Salaam):

The important thing(wa Allahu A’laam/ and Allah knows best) is that Allah wanted Ibrahim(‘aleihimussalaatu wa salaam/ upon him be peace and

Salaam) to sacrifice the love of his son from his own heart.

Like the story of the 2 sons of Adam; Allah wanted to see who would part from the dunia/worldly life from their hearts(wa Allahu A’laam/ and Allah knows best), by giving their best possessions i.e. the crops

Allah is Assamad(He is in need of noone/nothing, but all are in need of him).

So the conclusion is that Allah wants us to go to Him with Qalbun Salim(a pure heart).

May Allah allow us to live and die with Qalbun saliim(a pure heart)

May Allah guide us all

Ameen

Bonus Chapter 3

All praises be to Allah and salutations and peace be upon the Prophet Muhammad, His Family, His Companions and all those that follow him until the day of Judgement

To proceed

Fronting wouldn’t be such an accurate name for ‘gra gra’, as they call it in Nigeria.

In Nigeria, the social system/ system of daily interaction/ operation is set by the people(of-course by the permission of Allah), in their own way.

Trying to compare Nigeria with another country is like trying to compare tomatoes and potatoes, they are not the same; a vegan would definitely tell you that. Some

Nigerians will go a s far as telling you that:

“There are the Blacks, the whites, and then the Nigerians “

or thereabout, which in my (almost a) years experience in Nigeria, I would definitely agree with this idiom. This is from the angle of Nigeria and its people

I can categorically say that gragra is a spiritual system that Nigerians use to carry out their day to day tactical activities and strategies.

I must admit, I've never seen any system in the world so solid.

Much of their tactics and strategies(…) with regards to the 'gragra' is not even written down.

Gragra is a spiritually etched system in the souls of the people living in Nigeria (both Nigerians and

foreigners who have assimilated long enough in Nigeria).

As a practising Muslim(by the permission of Allah), I only wished to analyse the positive side of this so-called gragra.

In conclusion, at the end of the gragra, you get all the things you need(by the will of Allah), not necessarily what you want(especially if it is not good for

you). This is from an Islamic and spiritually inclined point of view.

Just as a final warning:

Nigeria is not for the faint-hearted nor the dumb-witted. You also have to have contacts in high places to (generally) positively live there.

Bonus Chapter 4

All praises be to Allah and salutations and peace be upon the Prophet Muhammad, His Family, His Companions and all those that follow him until the day of Judgement

To proceed

4 Parts to the Qadar(Pre- destiny of Allah)

1. Al ‘Ilm(knowledge)

That Allah knows everything that was, everything that is(now), everything that is going to be/ that will happen(in the future), and also things that **if they were to happen**, how they would happen.

2. Al Kitaabah(The writing)

That Allah instructed the pen to write all the things that will happen(till eternity- And Allah knows best), 50, 000 years before the creation of the Heavens and Earth.

3. Mashi a(Will)

That everything happens by the will of Allah.

That we also a will, but ultimately, it is still under the will of Allah.

‘Aml(Action/ Deeds)

That Allah created/ creates everything, including our actions.